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Anti-tumor-Promoting Activities of Agaro-Oligosaccharides on Two-Stage Mouse Skin Carcinogenesis

(マウス皮膚二段階発癌モデルにおけるアガロオリゴ糖の抗発癌プロモーター作用)

We have previously reported that agaro-oligosaccharides (AGOs) suppressed the elevated levels of nitric oxide(NO), prostaglandin E₂ (PGE₂), and pro-inflammatory cytokines in activated monocytes/macrophages, *via* heme oxygenase-1 induction. In this report, we initially demonstrated that AGOs intake inhibited NO production in activated peritoneal macrophages. Then, we tested for the ability of AGOs to prevent tumor promotion on the two-stage mouse skin carcinogenesis model. As a result, AGOs feeding led to delayed tumor appearance and decreased tumor number. It is known that PGE₂ is one of key players in carcinogenesis. Thus, we confirmed that PGE₂ production was suppressed by AGOs intake in TPA-induced ear edema model. We also demonstrated that cyclooxygenase-2 and microsomal PGE synthase-1, rate-limiting enzymes in PGE₂ production, were down-regulated by AGOs in human monocytes. Consequently, AGOs are expected to prevent tumor promotion by inhibiting PGE₂ elevation in chronic inflammation site.